

Ivlev, V.F.

F-4

USSR/Magnetism - Ferromagnetism

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11995

Author : Kirenskiy, L.V., Ivlev, V.F.

Inst : Krasnoyarsk Pedagogical Institute, USSR.

Title : Temperature Hysteresis of the Galvanomagnetic Effect.

Orig Pub : Dokl. AN SSSR, 1956, 106, No 3, 419-421

Abstract : An investigation was made of the galvanomagnetic effect in a nickel wire 20 cm long, 0.05 mm in diameter. During the investigation use was made of a compensator -- a similar nickel wire, wound in the form of a helix, whose turns are perpendicular to the field. The use of a compensator has made it possible to exclude the factor of the dependence of the resistance in the temperature. The temperature was raised from room temperature to the Curie point and again reduced to room temperature. The magnitude of the

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Ivlev, V. F.
 AUTHORS: Ivlev, V. F., Il'yushenko, V. L., Aseyeva, L. I. 48-9-10/26
 TITLE: An Investigation of the Irreversible Bounds of Magnetization
 in Ferromagnetica (Issledovaniye neobratimyykh skachkov peremag-
 nichivaniya v ferromagnetikakh).
 PERIODICAL: Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 9,
 pp. 1250-1254 (USSR.).

ABSTRACT: The purpose of the present paper was 1) to investigate the pro-
 blem, whether the law established by one of the authors, saying
 that the number of bounds and their magnitude is decreasing accor-
 ding to an exponential law at a temperature rise, holds for ferro-
 magnetica in general or only for nickel. 2) to perform an expe-
 rimental investigation of the dependence of the number and of the
 magnitude of the bounds on the crystallographic ordering and its
 temperature dependence. It is shown, that the number of magnetic
 reversal bounds is essentially dependent upon the crystallographic
 direction, which means, that there exists a considerable anisotropy
 of the number of bounds. The minima and maxima of the number of
 bounds of all dimensions correspond to the identical crystallogra-
 phic direction. It is shown, that in the case of a monocrystal
 sample of silicious iron the number of bounds is essentially de-

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An Investigation of the Irreversible Bounds of Magnetization
in Ferromagnetica.

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pendent upon temperature. On the basis of the investigation it is shown, that the anisotropy of the number of bounds, which has been established, as well as its temperature dependence reflect to a certain degree the anisotropy and the temperature dependence of the constant of magnetostriction λ_s for the different crystallo-

graphic directions.

There are 4 figures and 4 references, 3 of which are Slavic.

ASSOCIATION: State Institute for Pedagogics, Krasnoyarsk (Krasnoyarskiy gos. pedagogicheskiy institut).

AVAILABLE: Library of Congress.

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Ivlev, V. F.

AUTHORS:

Kirenskiy, L. V., Vlasov, A. Ya., Vtyurin, N. I. 48-2-12/26
Drokin, A. I., Ivlev, V. F., Tkalov, R. I.

TITLE:

Note on the Temperature- and Circular-Hysteresis in Ferromagnetic Substances (Temperaturnyy i vrashchatel'nyy gisterezis v ferromagnetikakh).

PERIODICAL:

Izvestiya AN SSSR Seriya Fizicheskaya, 1957, Vol. 21, Nr 9, pp. 1262-1267 (USSR.).

ABSTRACT:

In this paper experimental investigations were conducted of: 1) The temperature hysteresis of magnetization according to the B-cycle (cooling-heating) (TMH), 2) the temperature hysteresis of magnetostriction (TMH), 3) the temperature hysteresis of the galvanomagnetic effect (THGE) according to the A-cycle (heating-cooling), 4) the phenomenon of the "circular" hysteresis of magnetostriction was established and investigated parallel to the study of the losses in rotating magnetic fields. The investigations were conducted on various samples of nickel. On the examination of the TMH effect thick samples showed a much more marked effect than thin ones. If further cooling is applied, the thicker samples are subject to the effect of the demagnetization factor, which reduces the originally weak field. The importance of the energy of anisotropy grows, because of which fact

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Note on the Temperature- and Circular-Hysteresis in
Ferromagnetic Substances.

48-9-12/26

the magnetization vectors of the domains do not arrange themselves parallel with the magnetic field, but along the easier direction of magnetization, which cannot coincide with the orientation of the weak field. It is shown, that the THM-effect diminishes with the growth of the field. No THM-effect is observed in fields of the order of magnitude of 100 Oe. Analogous observations were made in the case of the THGE-effect. The magnitude of THM and THGE depends on the initial temperature of heating and on the final point of heating (conversion point), if it is below the Curie point. Analysis of the magnetographs from the magnetic recorder showed, that the magnetostriction as well as the UHM-effect grows strongly with an increase of the field from 100 to 1000 Oe and on a further increase of the fields tends asymptotically to its maximum values. There are 11 figures and 8 Slavic references.

ASSOCIATION: State Institute for Pedagogics of Krasnoyarsk (Krasnoyarskiy gos. pedagogicheskiy institut).

AVAILABLE: Library of Congress.

Card 2/2

AUTHORS: Ivlev, V. F., Rudyak, V. H. SOV/20-120-3-15/67

TITLE: On the Existence of a Most Probable Value of the Remagnetization Jump (O sushchestvovanii naiboleye veroyatnogo razmera skachka peremagnichivaniya)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 3, pp. 495 - 496 (USSR)

ABSTRACT: In spite of the considerable success achieved recently by investigations of the Barkhausen (Barkgauzen) effect, the problem of the character of the distribution of the remagnetization jumps according to the extent of these jumps has hitherto not been solved. Most research workers came to the conclusion that the number of remagnetization jumps grows with a reduction of their extent. For the purpose of investigating this problem more closely, the authors of this paper recently carried out experiments by means of a device which has already been described (Ref 8). It was possible to increase the sensitivity of this apparatus to 10^{-7} CGSM by a considerable reduction of the disturbances caused by the exterior "vagrating" magnetic fields. The investigations were

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On the Existence of a Most Probable Value of the
Remagnetization Jump

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carried out with not annealed as well as with annealed samples made from electrolytic nickel. The results obtained are illustrated by a diagram, according to which the curve has a marked maximum, which means that for every state of the sample there exists a most probable extent of the remagnetization jump which characterizes the respective state. This is true both for annealed and not annealed samples. By annealing the total number of these jumps is reduced, and the maximum of the distribution shifts towards the larger jumps. This shift is apparently due to reduction of elastic tensions as a result of annealing. A similar maximum in the curve of the distribution of remagnetization jumps according to their extent was also obtained by measurements carried out with iron samples. In conclusion, the authors thank Professor L.V.Kirenskiy for his valuable advice. There are 1 figure and 3 references, 3 of which are Soviet.

ASSOCIATION: Krasnoyarskiy pedagogicheskiy institut (Krasnoyarsk Institute
of Pedagogics)

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On the Existence of a Most Probable Value of the
Remagnetization Jump

SOV/20-120-3-15/67

PRESENTED: January 28, 1958, by A.V.Shubnikov, Member, Academy of Sciences,
USSR

SUBMITTED: January 28, 1958

1. Nickel--Magnetic factors
2. Iron--Magnetic factors
3. Magnetic fields--Properties
4. Magnetism--Analysis

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IVLEV, V.F.

71

PHASE I BOOK EXPLOITATION

SOV/5526

Vsesoyuznoye soveshchaniye po magnitnoy strukture ferromagnetikov,
Krasnoyarsk, 1958.

Magnitnaya struktura ferromagnetikov; materialy Vsesoyuznogo
soveshchaniya, 10 - 16 iyunya 1958 g., Krasnoyarsk (Magnetic
Structure of Ferromagnetic Substances; Materials of the All-Union
Conference on the Magnetic Structure of Ferromagnetic Substances,
Held in Krasnoyarsk 10 - 16 June, 1958) Novosibirsk, Izd-vo
Sibirskogo otd. AN SSSR, 1960. 249 p. Errata slip inserted.
1,500 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut fiziki Sibirskogo
otdeleniya. Komissiya po magnetizmu pri Institute fiziki metallov
OFMN.

Resp. Ed.: L. V. Kirenskiy, Doctor of Physical and Mathematical
Sciences; Ed.: R. L. Dudnik; Tech. Ed.: A. F. Mazurova.

PURPOSE: This collection of articles is intended for researchers in
ferromagnetism and for metal scientists.

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Magnetic Structure (Cont.)

SOV/5526

COVERAGE: The collection contains 39 scientific articles presented at the All-Union Conference on the Magnetic Structure of Ferromagnetic Substances, held in Krasnoyarsk in June 1958. The material contains data on the magnetic structure of ferromagnetic materials and on the dynamics of the structure in relation to magnetic field changes, elastic stresses, and temperature. According to the Foreword the study of ferromagnetic materials had a successful beginning in the Soviet Union in the 1930's, was subsequently discontinued for many years, and was resumed in the 1950's. No personalities are mentioned. References accompany individual articles.

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Shur, Ya. S. [Institut fiziki metallov AN SSSR - Institute of Physics of Metals, AS USSR, Sverdlovsk]. On the Magnetic Structure of Ferromagnetic Substances 5

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Magnetic Structure (Cont.)

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Electric Resistance of Iron at Low Temperatures

73

Kaganov, M. I. [Physicotechnical Institute AS UkrSSR, Khar'kov]. Influence of the Hall Effect on the Resistance of Ferromagnetic Substances

79

Krinchik, G. S. [Physics Department of the Moscow State University]. Structure of the Domain Boundary and Dynamic Properties of Ferromagnetic Substances

85

Telesnin, R. V., and Ye. P. Dzaganiya [Physics Department of the Moscow State University]. On the Delayed Jumps in Magnetization

91

Ivlev, V. F., and V. M. Rudyak [Pedagogicheskii institut - Teachers Institute, Krasnoyarsk]. Statistical Distribution of Remagnetization Jumps by Magnitudes

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Rodichev, A. M., V. A. Ignatchenko, and N. M. Salanskiy [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk].

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Magnetic Structure (Cont.)

SOV/5526

Evaluation of the Magnitude of the Barkhausen Jump 113

Ignatchenko, V. A., and A. M. Rodichev [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. On the Distribution of Barkhausen Jumps by Magnitude 123

Rodichev, A. M., N. M. Salanskiy, and V. I. Sinagubov [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. Statistical Distribution of Barkhausen Jumps by Duration 129

Rodichev, A. M. [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. Dependence of the Barkhausen Effect on the Rate of Change of the Magnetic Field 135

Ivlev, V. F., and V. M. Rudyak [Teachers Institute, Krasnoyarsk]. Measuring the Coercive Force by the Barkhausen Jump Method 143

Savchenko, M. K., and A. M. Rodichev [Institute of Physics, Siberian Branch AS USSR, Krasnoyarsk]. Simultaneous

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20973

S/O58/61/000/004/020/042

A001/A101

24.2200 (1137,1147,1158)

AUTHORS: Ivlev, V.P., Rudyak, V.M.

TITLE: On studying irreversible jumps of magnetism reversal

PERIODICAL: Referativnyy zhurnal, Fizika, no 4, 1961, 326, abstract 4E512 ("Uch. zap. Krasnoyarskiy gos. ped. in-t", 1958, v 2, 84 - 88)

TEXT: The authors investigated various methods of reducing the noise level at the output of a low-frequency amplifier in measuring Barkhausen discontinuities during magnetization reversal of the specimen. It was established that external magnetic disturbances play the main part. The effect of multiple electromagnetic screening of the measuring coil on the magnitude of external disturbances was studied. A considerable reduction of the noise level was achieved by decreasing dimensions and inductivity of the measuring coils by means of manufacturing them from a small-diameter wire (up to 0.03 mm). The employment of these coils permitted the measurements of magnetization reversal discontinuities amounting to $\sim 10^{-7}$ CGSM magnetic moment. An experimental curve was presented which characterizes the relation between the number of Barkhausen discontinuities and their dimensions for a Ni specimen. P. Korzhavin

[Abstracter's note: Complete translation.]

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20972

S/058/61/000/004/0197042
A001/A101

24.2200 (1137, 1147, 1158)

AUTHORS: Ivlev, V.F., Rudyak, V.M.

TITLE: On statistical distribution of Barkhausen discontinuities

PERIODICAL: Referativnyy zhurnal. Fizika, no. 4, 1961, 326, abstract 4E511 (Uch. zap. Krasnoyarskiy gos. ped. in-t", 1958, v 2, 89 - 98)

TEXT: Statistical distribution on Barkhausen discontinuities was experimentally studied by hysteresis loop. The number of emf pulses arising in the measuring coil during recording of Barkhausen discontinuities was counted, after amplification, with the aid of a ПЧ -64.5 (PS-64.5) computing circuit and an electromechanical circuit. To raise the sensitivity of the device, a measuring coil of 0.03 mm diameter copper wire was used; it had a low level of introduced noise at the great density of the turns. Barkhausen discontinuities were measured with a Ni-wire of 0.5 mm in diameter and 35 mm long in annealed and not annealed states at temperatures of +18 and -183°C. Owing to the higher sensitivity of this device, the distribution function of Barkhausen discontinuity numbers obtained differs essentially, in their magnitude, from the results obtained earlier by the other authors (Bush, Teblle. "Proc. Phys. Soc.", 1948, v 60; 370; Sawada. "J. Phys.

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20972

On statistical distribution of Barkhausen ...

S/058/61/000/004/019/042
A001/A101

Soc. Japan", 1952, v 7, 564). It was established that the distribution curve of Barkhausen discontinuities according to their magnitude had a maximum; its reason was the existence, for the given state of the specimen, of the most probable magnitude of the discontinuity of magnetization reversal; this magnitude depends on internal stresses in the specimen, and it shifts towards greater discontinuities after annealing.

P. Korzhavin

[Abstracter's note: Complete translation.]

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33684

S/O58/E1/000/012/065/083
AO58/A101

24,2200(1066,1147,1114)

AUTHORS: Ivlev, V.F., Rudyak, V.M.

TITLE: Statistical distribution in size of remagnetization jumps

PERIODICAL: Referativnyy zhurnal. Fizika, no. 12, 1961, 385, abstract 12E701 (V
sb. "Magnitn. struktura ferromagnetikov", Novosibirsk, Sib. otd.
AN SSSR, 1960, 101 - 112)

TEXT: A technique for measuring the distribution in size of remagnetiza-
tion jumps, and the basic diagram of the setup used, are described. The setup
was graduated by the calibration-coil method. It was established that noise level
is mainly due to inductance L of the measuring coil, and that increase of the
coil's ohmic resistance to 1 kohm virtually does not affect amplifier noise. Noise
level is appreciably reduced by screening the measuring coil by means of a magne-
tic screen. The sensitivity of the setup was enhanced by choosing a coil with
small L and high density of turns (thin wire). Measurements were carried out for
field strengths ranging from -100 to +100 oersted. Specimens of annealed and un-
annealed Ni and Ni-Si alloys were investigated. It was found that the integral
distribution curve has a point of inflection while the differential curve has a

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33684

S/058/61/000/012/065/083

A058/A101

Statistical distribution ...

maximum corresponding to the most probable value of the remagnetization jump. The effect of annealing, tension and impurities on the character of the distribution in size of jumps and on the most probable magnitude of jump, was studied. Initial annealing changes the distribution curve appreciably: The total number of jumps decreases, while the maximum is shifted to the side of sharper jumps. In the case of increase of internal stresses (after tension) the direct opposite was observed. Doping with Si (up to 2%) decreases the total number of jumps and causes the maximum to shift to the side of sharper jumps. Comparison of the distribution curves leads the authors to infer that 1) most jumps are due to nonmagnetic enclaves rather than to internal stresses and 2) jumps due to nonmagnetic enclaves are appreciably greater than those due to internal stresses.

L. Vinokurova

[Abstracter's note: Complete translation]

Card 2/2

24,2200 (1068,1158)

31759
S/058/61/000/011/017/025
A058/A101

AUTHORS: Ivlev, V. F., Rudyak, V. M.

TITLE: Measurement of coercive force by the Barkhausen jump method

PERIODICAL: Referativnyy zhurnal, Fizika, no. 11, 1961, 240, abstract 11E514
(V sb. "Magnitn. struktura ferromagnetnikov". Novosibirsk, Sib.
otd. AN SSSR, 1960, 143-145)

TEXT: For measuring coercive force a new method based on the Barkhausen effect is proposed. Coercive force is determined from the value of the magnetic field corresponding to half the number of Barkhausen jumps for a change in magnetization from $-I_s$ to $+I_s$. The experiment was carried out in a set-up in which one of the coils of the astatic magnetometer served as the magnetizing coil, which made it feasible to measure simultaneously the number of Barkhausen jumps, the magnetization I of the specimen and the magnetic field strength H . Experiments carried out with Ni and Fe specimens and Ni-Si alloys showed that in all cases, the field corresponding to half the total number of Barkhausen jumps was equal to the coercive force. By virtue of the great number of Barkhausen

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S/058/61/000/011/017/025

A058/A101

Measurement of coercive force ...

sen jumps and their good reproducibility, this method enables one to measure coercive force with an accuracy approaching 0.01 oersted even in the case of specimens 0.1 mm in diameter.

V. Ivancovskiy

[Abstracter's note: Complete translation]

Card 2/2

24,2200

2577
S/048/61/025/005/011/024
R117/P201

AUTHORS: Ivlev, V. F., and Prokopenko, V. S.
TITLE: Formation of nuclei and Barkhausen effect in ferromagnetic films

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Seriya Fizicheskaya.
v. 25, no. 5, 1961, 606-609

TEXT: The present investigation was the subject of a lecture delivered at a symposium on thin ferromagnetic films (Krasnoyarsk, July 4 to 7, 1960). Cylindrical iron films were examined with a view to clarifying the relationship between the process of the formation of nuclei and the Barkhausen effect in ferromagnetic films. The production technique differed somewhat from the usual procedure (Ref. 7: Blois M., J. Appl. Phys., 26, 975 (1955)). The vaporizer was an iron solenoid fastened inside an evacuated glass chamber with the aid of a mica holder. The film was sputtered onto a glass thread strained along the solenoid axis. The glass thread was first degreased and then cleaned by gas discharge at a pressure of $\sim 10^{-2}$ mm Hg. At the beginning of evaporation the pressure

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B117/B201

Formation of nuclei and Barkhausen...

in the vacuum chamber did not exceed $8 \cdot 10^{-6}$ mm Hg. When heating the solenoid with direct current, uniaxially anisotropic films resulted, whose axes of easiest magnetizing coincided with the solenoid axis. The field created by the vaporizer amounted to at most 20 oe at the film surface. The investigation method was on principle the same as is usually applied to the study of the Barkhausen effect in massive ferromagnetic substances (Ref. 8: V. F. Ivlev, Izv. AN SSSR, Ser. fiz., 16, 664 (1952)). A broad-band standard amplifier of the type YU-10 (USh-10) served as the main amplifier. The sensitivity of the system allowed safely to detect magnetization jumps in film volumes of over $1.2 \cdot 10^{-9}$ cm³. Investigation results are given for films 5000 Å thick, that were sputtered onto a thread 0.3 mm in diameter. Films were subjected to magnetic reversal along the axis of their easiest magnetizing with a field changing at a rate of 0.02 oe sec⁻¹. Jumps were observed twice, in field intervals $\pm 36 \div 49$ oe, during one cycle, with a rise of the absolute field value. On a complete magnetic reversal of the films concerned, the resulting distribution of the type

$$N = N_0 \exp(-kM^{1/n}) \quad (2)$$

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Formation of nuclei and Barkhausen...

is valid (M - magnitude of the magnetization jump; N_0 - total number of jumps; N - number of jumps of a large M ; λ , k , n , and A - constant quantities). It was established from the statistical distribution of differently large jumps (Fig. 3) that the distribution character of magnetization jumps in the film changes in magnitude during magnetization. Beginning with a field of 39.5 oe, when already 80 % of the film substance has undergone magnetic reversal, the distribution of jumps takes place according to formula (1)

$$N = N_0 \exp(-\lambda M) \quad (1)$$

(Fig. 4, where N_0 is the number of jumps established after the field of 39.5 oe has been applied). Such a distribution character of the jumps over the field is difficult to explain on the basis of the model offered in Ref. 1 (Ford N., Pugh E., J. Appl. Phys. (S), 30, 270 (1959)), as this model ignores the process of formation of nuclei completely. Under the premise that all jumps observed in the magnetic reversal of the film are dependent upon the process of formation of nuclei, the distribution diagram of the number of jumps in the field must be a straight line in coordinates $\ln(1 - \frac{N}{N_0})$ and $\ln(H_k - H)/(H_k - H_0)$. Such a diagram,

X

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B:17/B201

Formation of nuclei and Barkhausen...

constructed on the basis of results obtained, is presented in Fig. 5. The field of 39.5 oe corresponds to the salient point. The differing values of p for the two sections of the straight line point to different conditions of formation of the magnetization jumps below and above the 39.5 oe field. Once the process of magnetic reversal is over, distribution (1) is valid, which is characteristic of the magnetic reversal by the displacement of a boundary. This happens possibly with the magnetic reversal of cylindrical films: the ring-shaped boundary formed by the nuclei diffusing into one another is moving. The fact that the magnetization jumps observed in this connection are distributed over the field in a similar way as the nuclei of magnetic reversal allows the statement to be made that on a displacement of the boundaries in the film the magnetization jumps depend upon the formation of nuclei directly at the boundaries. It is possible in this way to compare every Barkhausen jump to the formation of a nucleus of inverse magnetization. On a faster growth of the field causing magnetic reversal the total number of jumps during one cycle increases (Fig. 6). This could prove to be to the same extent a consequence of an increase of the number and an increase of the size of the nuclei of magnetic reversal in films with a quicker change of the field. There are 6 figures and

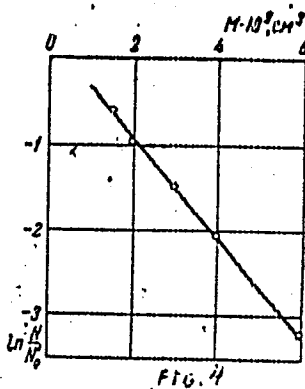
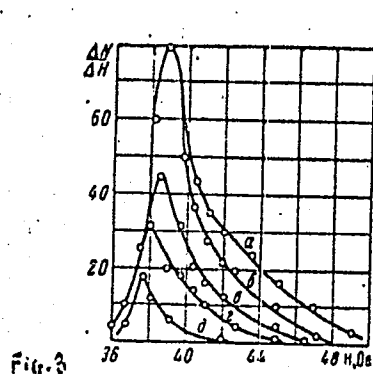
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Formation of nuclei and Barkhausen....

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9 references: 1 Soviet-bloc and 8 non-Soviet-bloc.

ASSOCIATION: Krasnoyarskiy gos. pedagogicheskiy institut (Krasnoyarsk State Pedagogical Institute)



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24,2200

35327
S/139/62/000/001/026/032
EO32/E114

AUTHORS: Ivlev, V.F., and Prokopenko, V.S.
TITLE: On the Barkhausen effect in cylindrical iron films
PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Fizika, no.1, 1962, 154-157

TEXT: The authors report a study of the statistical distribution of Barkhausen pulses for slow magnetisation reversal in cylindrical iron films obtained by vacuum evaporation. The technique used in the measurements was essentially the same as that reported by the first of the present authors in a previous paper. The sensitivity of the apparatus was such that it was possible to record magnetisation discontinuities within film volumes greater than $1.2 \times 10^{-9} \text{ cm}^3$. The results reported in the present paper refer to films 5000 Å thick and deposited on glass fibres 0.3 mm in diameter. The rate of magnetisation was 0.08 oersted/sec. It was found that the magnitude of the Barkhausen pulses could be described by a formula of the form

$$N = N_0 A e^{-kM^{1/n}} \quad (2)$$

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On the Barkhausen effect in ...

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E032/E114

where M is the magnitude of the magnetisation discontinuity and N is the number of such discontinuities greater than M . This formula was originally reported by N. Ford and E. Pugh, for FeNi. It was found that, beginning with a field of 39.50 oe, when 80% of the material had been remagnetised, the distribution of the discontinuities could be described by a formula of the form:

$$N = N_0 e^{-\lambda M} \quad (1)$$

where N_0 is the number of discontinuities of all sizes recorded above 39.5 oe. Finally, a plot of $\ln \left[\frac{H_K - H}{H_K - H_0} \right]$ versus $\ln (1 - N/N_0)$ was found to consist of two straight lines of slightly different slopes joined together at a point corresponding to 39.5 oe. In the above expressions H_K is the anisotropy field, H_0 is the field for the formation of the first "nucleus", N_0 is the possible number of "nuclei" in the interval $H_K - H_0$, and p is the probability density for the formation of a "nucleus" in the film which is constant in the remagnetisation region. It is therefore concluded that it is possible to look

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On the Barkhausen effect in ...

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EO32/E114

upon each Barkhausen jump as the formation in the film of a
nucleus with the reverse direction of magnetisation.
There are 4 figures.

ASSOCIATION: Krasnoyarskiy pedinstitut
(Krasnoyarsk Pedagogical Institute)

SUBMITTED: October 10, 1960

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116 118
S/126/62/014/006/019/020
E073/E420

24.2200

AUTHORS: Ivlev, V.F., Pak, N.G., Kan, S.V.

TITLE: Hysteresis loops in flat ferromagnetic films

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.6, 1962,
938-940

TEXT: There are no literary data on the hysteresis of isotropic films. To fill this gap ferromagnetic films were investigated which were produced by thermal evaporation of iron and of an alloy (17% Fe, 80% Ni, 3% Mo) from a tungsten crucible. The metallic vapour beam was at an angle of 15° to the substrate. Relatively thick iron films were deposited on glass discs (heated to 300°C) in a magnetic field of 100 Oe, by evaporation from an electrically heated iron wire. The metal layer was not covered by a layer of a dielectric. The magnitude and the direction of the magnetization vector changed during cyclic remagnetization and hence the flux of reflected polarized light also changed. Using the longitudinal Kerr effect by revolving the specimen or the remagnetization equipment relative to the plane of incident light a series of loops could be obtained from a single film in the same way as if mutually perpendicular measuring coils were used. There
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Hysteresis loops ...

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E073/E420

was good agreement between the hysteresis loops obtained for the same film, magneto-optically and by current methods. The rectangularity of hysteresis loops and the coercive force of a 2100 Å thick film showed no appreciable change on changing the angle between the direction of remagnetization and the plane of the incident light. Iron films exceeding 1000 Å were shown to be isotropic. The hysteresis behaviour of iron and molybdenum permalloy films, vacuum-deposited from tungsten crucibles indicated that they were uniaxially anisotropic. Hysteresis loops of 2100 and 450 Å thick iron films, recorded from various sections of the films, showed that in the isotropic films the coercive force of both sections was 6 and 7 Oe, whilst in the anisotropic films (vacuum-deposited from crucibles) the respective values were 27.7 and 30.8 Oe. The differences in the coercive force of individual sections of the thin films were explained by the irregular distribution of the nonuniformities. A correspondence was observed between the behaviour of the hysteresis loops and the domain structure. Remagnetization in isotropic films was by boundary displacement. The domain structure in very thin iron

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ALPHABETIC INDEX																									
FIRST AND SECOND ORDERS													PROCESSING AND PROPERTY INDEX												
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE													1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100												
<p>Energy metabolism in aquatic organisms IV Utilization coefficient and energy assimilation in Tubifex tubifex. V. S. Ivlev. <i>Bull. biol. med. exptl. U. R. S. S. S.</i> 1963-1 (1967). The utilization coeff. of energy average 31-40%, this value being of the order of magnitude found in fishes and microorganisms. S. A. Corson</p>																									
<p>ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>																									

1ST AND 2ND ORDERS																										PROCESSING AND PROPERTY DATA																									
<p style="text-align: right;">2</p> <p><i>C.B.</i></p> <p>The balance of substances in the "Beloe" Lake (Krasnoe). The balance of iron. V. S. Ivlev, <i>Trois Limnolog. Slavskii Kazino</i> 1937, No. 21, 21-22; <i>Khim. Raznos. Zhur.</i> 1, No. 3, 61(1938). -- A stratification of Fe is observed in summer and especially in winter in the lower layers (18 mg./l. in summer and 40-45 mg./l. in winter).</p> <p>d The vertical distribution correlates with pH and O₂, although no quant. An inversely proportional relation between the amt. of Fe in the water column and the amt. of exchange Fe present in the bottom was found. The pH was 10.00-10.60 while the pH varied only slightly.</p> <p style="text-align: right;">W. R. Henn</p>																																																			
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11A

1 The transformation of energy during the growth of invertebrates. V. S. Ilyev, *Bull. soc. naturalistes Moscou, Ser. 68*, 47, 267-76 (in French, 270-7) (1938); *cf. C. A.* 32, 6751. --The energy balance of an org. substance is composed of two moments: (1) transformation of solar radiation in green plants and formation of primary org. substances, and (2) conversion of the energy of the primary substance in a successive line of heterotrophic organisms. In the innumerable series of alimentary chains where 2 takes place the first link invariably contains the product of photosynthesis. The utilization by certain heterotrophic organisms of the oxidation energy of some inorg. substances is common, but insignificant in comparison with the activity of green plants. Energy utilization in each link is not complete, and this is accompanied by a certain waste. The quantitative indicator of this phenomenon is the trophic coeff. or its inverse quantity, known as the quantity of energy utilization. Taking as a base Terroine's energy equation there are three coeffs. of the first, second and third degree, that of the second being of the utmost importance for the energy transformation in the alimentary chain because the nonassimilated energy is not lost, but acts as an energy source for other bodies. The quantities of energy utilized in their first stages approach the same for various forms of animal life except man. This coeff. is very stable and is not affected by outside influences, depending only upon the chem. nature of the nutritive substance and the age of the body. The specimens experimented upon were: *Tubifex tubifex*, *Lumnae ovata*, *Daphnia pulex* and *Argolis segetum*. The

energy was calc. from food consumed and excrements, expressed in cal. by Ilyev's method. All data are given in graphs and tables. In order to express mathematically the changes with age of the energy utilization coeff. the parabolic equation of the 2nd degree was used. If the area limited by the parabola or its part, and by the axes of the coordinates, is expressed by a corresponding integral, dividing it by the period of growth gives the mean utilization coeff. of the energy for the entire period of animal growth, and is equal to about 43.5%. The initial magnitude being const., to calc. the mean coeff. and the quantity of energy utilized during its life, it is necessary to know only two factors: the age of the specimen, and the time when growth stopped. Bibliography is given.

B. Gutoff
Moscow

ASD-34A METALLURGICAL LITERATURE CLASSIFICATION

FROM SYMBOL										TO SYMBOL									
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20

1ST AND 2ND ORDER		3RD AND 4TH ORDER		5TH AND 6TH ORDER		7TH AND 8TH ORDER		9TH AND 10TH ORDER		11TH AND 12TH ORDER		13TH AND 14TH ORDER		15TH AND 16TH ORDER		17TH AND 18TH ORDER		19TH AND 20TH ORDER		21ST AND 22ND ORDER		23RD AND 24TH ORDER		25TH AND 26TH ORDER		27TH AND 28TH ORDER		29TH AND 30TH ORDER		31ST AND 32ND ORDER		33RD AND 34TH ORDER		35TH AND 36TH ORDER		37TH AND 38TH ORDER		39TH AND 40TH ORDER		41ST AND 42ND ORDER		43RD AND 44TH ORDER		45TH AND 46TH ORDER		47TH AND 48TH ORDER		49TH AND 50TH ORDER		51ST AND 52ND ORDER		53RD AND 54TH ORDER		55TH AND 56TH ORDER		57TH AND 58TH ORDER		59TH AND 60TH ORDER		61ST AND 62ND ORDER		63RD AND 64TH ORDER		65TH AND 66TH ORDER		67TH AND 68TH ORDER		69TH AND 70TH ORDER		71ST AND 72ND ORDER		73RD AND 74TH ORDER		75TH AND 76TH ORDER		77TH AND 78TH ORDER		79TH AND 80TH ORDER		81ST AND 82ND ORDER		83RD AND 84TH ORDER		85TH AND 86TH ORDER		87TH AND 88TH ORDER		89TH AND 90TH ORDER		91ST AND 92ND ORDER		93RD AND 94TH ORDER		95TH AND 96TH ORDER		97TH AND 98TH ORDER		99TH AND 100TH ORDER																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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11A

A method for determining the rate of formation of organic matter in reservoirs. V. S. Iyev. Microbiology (U. S. S. R.) 8, 996-1000 (in English) (1967) (1969). To avoid changes in the compn. of plankton under lab. conditions, periphyton developed on 10 object slides (with a hole in one end, and a string) was suspended at a depth of 15-20 cm. in a clean coastal bay. Every 5 days the matter on 5 slides was used for detn. of calorificity by moist combustion (cf. C. A. 29, 2243). At the same time 5 slides were suspended in light jars and 3 in dark ones. As growth progressed in the control jars the contents were transferred every 10-15 days into larger jars to prevent sunn. by O₂. The O content did not exceed 12 mg. per l. The expt. lasted 40 days. For exale, the amt. of org. matter formed in the jars, 10 slides with 25 days' growth were placed in a vessel with water of a predetd. org.-matter content. After 24 hrs. this content was redetd. A daily accumulation of periphyton with 300.2 g. cal. gave off only 2.9 g. cal. into the medium. This makes corrections superfluous. In the first days diatoms, infusoria and rotifera predominated. At 5-10 days the diatoms decreased in no. and algae predominated. At 15-40 days *Cladophora fraxia* developed to the exclusion of all other forms. The daily intensity of photosynthesis and respiration increased with the age of the growing forms, but decreased after the 24th day, when calcd. as percentage of the growing mass. The org. matter (in mg. O and g. cal.) detd. every 5 days, increased up to 30 days, then decreased. At 5-25 days the detd. calorificity of the growing mass was 32-75% lower than the calcd. calorificity, but at 30 days, the deviation was 25% and at 50-40 days it was 10%. T. Laanes

ASH-11A METALLURGICAL LITERATURE CLASSIFICATION

11A

"Effect of Starvation on Energy Transformation during the Growth of Fish,"
Dok. AN, 25, No. 1, 1939.

Mbr., Astrakhan National Park, (1939-'40).

1ST AND 2ND ORDERS										PROCESSES AND PROPERTIES INDEX										3RD AND 4TH ORDERS									
BC																				A.4									
<p>Energy balance of the growing larva of <i>Stenopus</i> <i>placida</i>. V. S. Iyengar. (Comp. rend. Acad. Sci. U.R.S.S. 1959, 22, 47-49). Determinations are made of the energy balance in larvae of <i>S. placida</i> from hatching until resorption of the yolk. The coefficients of energy consumption are higher than those in actively fed animals, comparatively low basal during the first and second 24-hr. periods being due to the high level of basal metabolism. The energy of the waste products is very low. A. I.</p>																													
<p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																													
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PROCESSING AND PROPERTIES INDEX																									
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<p>Intensity of photosynthesis and the production of fish by fish ponds. V. S. Ivlev. <i>Bull. soc. naturalistes Moscou. Sect. biol.</i> 48, No. 1, 29-34 (1939); <i>Chem. Zentr.</i> 1948, II, 916.—The accumulation of org. matter in closed fish ponds can occur in 3 ways: (1) by being brought in from outside the pond, (2) by formation at the expense of the energy of oxidation of inorganic compds. by autotrophic microorganisms, (3) photosynthesis. The first two processes do not contribute importantly to fish ponds. Org. matter was estd. photosynthetically according to the method of Gran and Rund (cf. C. A. 23, 4487) in the procedure recommended by Winberg and Ivanov. There is a pos. correlation between the quantity of primary org. matter synthesized by phytoplankton photosynthetically and the increase in fish. The energy represented by the living tissues of the fish produced by photosynthesis indicates an efficiency of conversion of between 5 and 20%. Theoretical calcs. deviate markedly from the data, either because too low a value had been placed upon the contribution of the macrophytes, or because it is impossible to obtain an exact measure of the quantity of the primarily formed org. matter. E. L. Green.</p>																									
<p>ASA-SCA METALLURGICAL LITERATURE CLASSIFICATION</p>																									
<p>100 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>																									

115

Utilization of the energy of fat and carbohydrate oxidation in poikilothermic animals. V. S. Loxov. *Bull. un. naturalistes Moscou, Sect. biol.* 48, No. 1, 20-7 (in French, 77-83) (1989); cf. C. A. 32, 67510. One-yr. old carps, fed daily on earthworms injected with dried, defatted, and powdered fish muscle with an addn. of cabbage and yeast, were used in the expts. The worms were previously irradiated with a quartz lamp. In one series rice starch, in the other series pork fat was added to the basic diet by injection into the worms. The amt. of the ingested food was detd. on the basis of metabolic N values. After 18 days the resorption of proteins, fats and carbohydrates was 93.2, 90.7 and 95.1%, resp. Calcd. by the gain in wt. and comparing it with that of controls, the individual increment in the 1st series was 27,771 kg. cal., in the 2nd 27,380 kg. cal. The utilization coeff. of energy is 62.21 and 31.46%, resp. Thus in fishes the energetic effect of 1 g. of fat equals that of 1.12 g. of starch.

T. Laxnes.

ASB-31.4 METALLURGICAL LITERATURE CLASSIFICATION

CA

Influence of moonlight on the photosynthesis in fresh water algae. V. S. Iyev and M. I. Mukharevskaya. *Compt. rend. acad. sci. U. R. S. S.* 27, 713 (1940) (in English).—Photosynthesis by algae in the Volga River was measured in full moonlight. CO_2 absorption was 7.6% greater in the lighted than in the darkened jars. Because of large variations among the individual detns. this figure is not mathematically significant. J. J. W.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

Hydrochemical sketch of the river Piasina. V. S. Islyg, *Hydro-
chem. Mat.*, 1941, 18, 189-191) -- The river is in the Siberian tundra
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IVLEV, V. S.

"The Biological Productivity of Waters" (p. 98) by Ivlev, V. S. (Kiev)

SO: Advances in Modern Biology (Uspekhi Sovremennoi Biologii) Vol. XIX, No. 1, 1945.

"Conversion of Energy during the Growth of Birds,"
Byul. Mosk. Obshch. Ispytat. Prir., Otdel Biol., 43, No. 4, 1948.

"Intensity in Competition for Food and the Systematic Relation between the Competitors,"
Dok. AN, 60, No. 2, 1948.

35967 Dinamika vlastnosti iroshnika posle vegetatsionnogo. Perioda. Metod. Zapiski (Osvetshnitel'nyy tsentr, Glav. Spravochnika), Vol. 12, 1969, S. 399-42

SO: Ietopis' Zhurnal'naya State, Vol. 15, Moskva, 1969

1. IVLEV, V. S. and IVLEVA, I. V.
2. USSR (600)
4. Salmon
7. Results of the evaluation of the physiological value of live feed (*Enchytraeus albidus* Henle) in raising the young of salmon. Zool.zhur. 31 no. 6, 1952.

9. Monthly Lists of Russian Accessions, *Library of Congress, March 1953, Unclassified.

IVLEV, V.S.

Electronically signed by V.S. IVLEV

Relation of metabolic rate in fish to body weight. Fiziol. zhur. 40
no.6:717-721 N-D '54. (MLRA 8:2)

1. Latviyskoye otdeleniye VNIRO.

(FISH,

relation of metab. to body weight)

(BODY WEIGHT,

relation to metab. in fish)

(METABOLISM,

relation to body weight in fish)

IVLEV, V.S.

Effect of winter conditions on the blood of some fresh-water fishes.
Biol.MOIP. Otd.biol.60 no.4:73-78 J1-Ag'55. (MLRA 8:12)
(COLD -PHYSIOLOGICAL EFFECT) (FISHES)

USSR / General Division, Biometry

A-7

Abs Jour: Ref Zhur-Biologiya, No 5, 1958, 18924

Author : Ivlev V. S.

Inst :

Title : Biology and Mathematics

Orig Pub: Vopr. filosofii, 1956, No 6, 76-79

Abstract: A criticism of the opinion of some biologists that mathematics is not necessary to biology. Examples of the solution of biological problems by mathematical methods. Briefly analyzed are the fields of mathematics which can be used in biology. Regrets are expressed on the fact that biologists have poor mathematical preparation.

Card 1/1

IVLEV, V.S.; GERBIL'SKIY, N.L.

"Intensity of metabolism and food requirements of fishes" by
G.G. Vinberg. Reviewed by V.S.Ivlev and N.L.Gerbil'skii.
Zool.shur. 36 no.5:795-797 My '57. (MIRA 10:7)
(Fishes--Food) (Metabolism) (Vinberg, G.G.)

IVLEV, V.S., doktor biol. nauk

Ecologico-physiological analysis of the distribution of fishes as related to temperature gradients of the environment. Trudy sov. ikht. kom. no. 8: 288-296 '58. (MIRA 11:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut ozernogo i rechnogo rybnogo khozyaystva.
(Temperature--Physiological effect) (Fishes)

IVLEV, V.S.

De Luri's regression method of estimating commercial fish
populations. Vop. ikht. no.11:39-43 '58. (MIRA 12:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut ozernogo i
rechnogo rybnogo khozyaystva.
(Fisheries--Research)

IVLEV, V.S.

Some problems of theoretical ecology [with summary in English].

Biul. MOIP. otd. biol. 63 no.1:5-14 Ja-F '58.

(MIRA 11:5)

(ZOOLOGY--ECOLOGY)

IVLEV, V.S.

Mathematical analysis of population dynamics of fishes. Vest.
LGU 14 no.9:119-127 '59. (MIRA 12:5)
(BIOMETRY) (FISHERIES--RESEARCH)

IVLEV V.S.

ENCERFTA MEDICA Sec 2 Vol 12/1. Physiology Nov 59

5373. EVALUATION OF THE EVOLUTIONARY VALUE OF ENERGY METABOLISM LEVELS (Russian text) - Ivlev V. S. - ZH. OBSICH. BIOL. 1959, 20/2 (94-103)

Analysis of data from the literature indicates a general correlation between the intensity of the energy metabolism and the weight of animals. This correlation is of parabolic character and holds good for large systematic groups. Corresponding numerical equations are presented for arthropods, fishes, birds and mammals. The similarity between this regularity and the rule of relative growth suggests that it is the ratio of active to inactive tissues which is the main mechanism of energy metabolism. Quantitative characteristics of these tissues appear to be a particular case of the rule of relative growth. On the assumption of the conservatism of the levels of basal metabolism, the general course of the evolution of metabolic processes is thought to consist of the acquirement of the ability for repeated stimulation of the active metabolism which is the result of the intensity of muscular work. Comparison of this ability in some animal classes with the generally accepted criterion of 'progress', i.e. specific diversity, gives a good agreement.

Inst. of Fresh Water Fisheries

IVLEV, Y. S.

Analysis of the mechanism of distribution of fish in changing
water temperature. Zool.zhur. 39 no.4:494-499 Ap '60.

(MIRA 13:11)

1. All-Union Research Institute of Lake and River Fishery Manage-
ment, Leningrad.

(Fishes)

VIGDOROVICH, V.N. (Moskva); IVLEVA, V.S. (Moskva);
KROL', L.Ya. (Moskva)

Distribution of arsenic and selenium inclusions during the
zonal recrystallization of antimony. Izv. AN SSSR, Otd. tekhn.
nauk. Met. i topl. no.4:29-30 J1-Ag '61. (MIRA 14:8)
(Antimony—Metallurgy)
(Zone melting)

IVLEV, V.S.; IVASIK, V.M.

Materials on the biology of mountain rivers in Soviet Transcarpathia. Trudy Gidrobiol. ob-va 11:171-188 '61. (MIRA 15:1)

1. Sevastopol'skaya biologicheskaya stantsiya AN USSR i L'vovskiy zooveterinarnyy institut.
(Transcarpathia--Fresh-water fauna)

IVLEV, V.S.

Principle underlying mathematical model studies of the dynamics of commercial fish populations. Trudy sov. Ikht. kom. no.13:185-193 '61.
(MIRA 14:8)

1. Sevastopol'skaya biologicheskaya stantsiya AN SSSR.
(Fisheries--Research)

IVLEV, V.S.

Method of estimating the amount of food available to fishes.
Trudy sov. Ikht. kom. no.13:330-336 '61. (MIRA 14:8)

1. Sevastopol'skaya biologicheskaya stantsiya AN SSSR.
(Fishes--Food)

IVLEV, V.S.

Utilization of food by planktonophagous fishes. Trudy SSS 14:
188-201 '61. (MIRA 15:4)

(Fishes--Food)

IVLEV, V.S.; SUSHCHENYA, L.M.

Intensity of aquatic and atmospheric respiration in some marine crustaceans. Zool. zhur. 40 no.9:1345-1353 S '61. (MIRA 14:8)

1. Sebastopol Biological Station of the U.S.S.R. Academy of Sciences.

(Crustacea) (Respiration)

IVLEV, V.S.

The level of energy metabolism in lancelets. Dokl. AN SSSR
140 no.5:1217-1219 0 '61. (MIRA 15:2)

1. Sevastopol'skaya biologicheskaya stantsiya im. A.O.Kovalevskogo
AN SSSR. Predstavleno akademikom Ye.N.Pavlovskim.
(Metabolism)
(Lancelets)

IVLEV, V.S.

Energetic foundations of the problem of biological productivity.

Vop. ekol. 4:27-28 '62.

(MIRA 15:11)

1. Biologicheskaya stantsiya AN SSSR, Sevastopol'.
(Bioenergetics) (Zoology--Ecology)

IVLEV, V.S.

Biological foundations for organizing combined carp and salmon farms. Trudy sov. Ikht. kom. no.14:64-67 '62. (MIRA 15:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut
ozernogo i rechnogo rybnogo khozyaystva (GosNIORKh),
(Baltic Sea region—Carp)
(Baltic Sea region—Salmon)

IVLEV, V.S.

Active energy metabolism in the young of the Baltic salmon
(*Salmo salar* L.) Vop. ikht. 2 no.1:158-168 '62. (MIRA 15:3)

1. Sevastopol'skaya biologicheskaya stantsiya AN SSSR.
(BALTIC SEA--SALMON)
(METABOLISM)

IVLEV, V.S.

Smolt metamorphosis of salmon and its biological importance.
Zhur. ob. biol. 23 no.1:72-73 Ja-F '62. (MIRA 15:3)

1. Biological Section of the U.S.S.R. Academy of Sciences,
Sebastopol.

(SALMON)

IVLEV, V. S. (Sevastopol ')

"Parameters Characterizing the Level of Energy Metabolism of Animals."

report presented at the 3rd Conference on the use of Mathematics in Biology, Leningrad University, 23-28 Jan 1961.

(Primeneniye matematicheskikh Metodov v Biologii. II, Leningrad, 1963, pp. 5-11

~~(Moscow Agricultural Academy imeni Timiryazev)~~

IVLEV, V.S.

Parameters characterizing the levels of energy metabolism
in animals. Prim. mat. metod. v biol. no.2:146-151 '63.
(MIRA 16:11)

IVLEV, V.S.

Study of the distribution of animals as related to the
environmental gradients as a method of ecological and physi-
ological analysis. Trudy SRS 16:277-281 '63.

(MORA 17:6)

IVLEV, V.S.

Energy expenditure during the motion of prawns. Zool. zhur. 42
no.10:1465-1471 '63. (MIRA 16:12)

1. Institute of Biology of South Seas, Academy of Sciences of
the Ukrainian S.S.R., Sebastopol.

IVLEV, V.S.; YAKOVLEVA, K.K.

Energy metabolism level in sponges. Dokl. AN SSSR 152 no.1:241-243
S '63. (MIRA 16:9)

1. Sevastopol'skaya biologicheskaya stantsiya AN UkrSSR.
(SPONGES) (METABOLISM)

VODYANITSKIY, V.A., otv. red.; DOLGOPOL'SKAYA, M.A., kand. biol.
nauk. red.; GREZE, V.N., doktor biol. nauk, red.; ~~V.S.~~
V.S., doktor biol. nauk, red. [deceased]; PITSYK, G.K.,
kand. biol. nauk, red.; SHARPILO, L.D., red.

[Studies of plankton in the Black and Azov Seas] Issle-
dovaniia planktona Chernogo i Azovskogo morei. (Kiev,
Naukova dumka, 1965. 115 p. (MIRA 18:8)

.. Akademiya nauk URSR, Kiev. 2. Chlen-korrespondent
AN Ukr.SSR (for Vodyanitskiy).

VODYANITSKIY, V.A., otv. red.; DOLGOPOL'SKAYA, M.A., kand. biol.
nauk, red.; VINOGRADOV, K.A., doktor biol. nauk, red.;
GREZE, V.N., doktor biol. nauk, red.; IVLEV, V.S., doktor
biol. nauk, red. [deceased]; KISELEVA, M.I., kand. biol.
nauk, red.; SHARPILO, L.D., red.

[Benthos] Benthos. Kiev, Naukova dumka, 1965. 137 p.
(MIRA 18:7)

1. Akademiya nauk SSSR. 2. Chlen-korrespondent AN Ukr.SSR
(for Vodyanitskiy).

IVLEV, Ye.T.

Vector sets of submanifolds in the theory of paired complexes
in P3. Dokl. AN SSSR 139 no.3:538-540 J1 '61. (MIRA 14:7)

1. Tomskiy gosudarstvennyy universitet im. V.V. Kuybysheva.
Predstavleno akademikom P.S. Aleksandrovym.
(Complexes) (Vector analysis)

IVLEV, Ye.T.

Canonical frame of reference of a pair of congruences in three-dimensional projective space. Trudy TGU 160:15-24 '62.

Frame of reference of submanifolds in the theory of pairs of congruences in P_3 . Ibid.:25-38 (MIRA 17:1)

IVLEV, Ye.T.

Canonical frame of reference of an arbitrary pair of complexes in
P₃. Sib. mat. zhur. 4 no.3:562-581 My-Je '63. (MIRA 16:6)
(Geometry, Differential--Projective) 'Complexes)

IVLEV, Ye.T.; PERGAMENSHCHIKOV, M.B.

A projective class of pairs of complexes. Dokl. AN Arm. SSSR
36 no.1:11-15 '63. (MIRA 17:1)

1. Predstavleno akademikom AN Arnyanskoy SSR M.M. Dzhrbashyanom.

IVLEV, Ye.T.

Frames of submanifolds in the theory of pairs of complexes in R
Sib. mat. zhur. 4 no.4:799-820 JI-AG '63. (MIRA 16:9)³

IVLEV, Yu.G., inzh.

Improve the maintenance of roofing. Gor.khoz.Mosk. 36 no.7:20
Jl '62. (MIRA 16:1)

(Roofs--Maintenance and repair)

IVLEV, Yu.G., inzh.

Productions bases for housing offices. Gor.khoz.Mosk. 36
no.12:18-20 D '62. (MIRA 16:2)
(Moscow---Apartment houses)

KANAVETS, P.I.; MELENT'YEV, P.N.; YENIK, G.I.; IVLEVA, A.S.;
LAZOVSKIY, I.M.; GRYAZNOV, N.S.; MOCHALOVA, G.V.; KORENSKIY, V.I.

Preliminary granulating of coal charges with rolling in mazut.
Koks i khim. no.8:10-14 '63. (MIRA 16:9)

1. Institut goryuchikh iskopayemykh AN SSSR (for Kanavets,
Melent'yev, Yenik, Ivleva).
2. Vostochnyy uglekhimicheskiy
institut (for Lazovskiy, Gryaznov, Mochalova, Korenskiy).
(Coal preparation)

KANAVETS, P.I.; MELENT'YEV, P.N.; SPORIUS, A.E.; CHERNYKH, V.I.;
YENIK, G.I.; IVLEVA, A.S.

Technological characteristics of granulating coal charges.
Trudy IGI 22:147-153 '63.
(MIRA 16:11)

KANAVETS, P.I.; MELENT'YEV, P.N.; SPORIUS, A.E.; CHERNYKH, V.I.;
YENIK, G.I.; IVLEVA, A.S.; GESS, B.A.; CHERNYSHEV, A.M.

Obtaining metallurgical coke from weakly-caking coals by
the preliminary granulation of coal charge mixtures prior
to coking. Trudy IGI 22:154-168 '63. (MIRA 16:11)

ACCESSION NR: AT4002662

S/2531/63/000/149/0072/0080

AUTHOR: Shver, Ts. A.; Ivleva, G. F.

TITLE: Length of the period of solid and mixed precipitation of USSR territory

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy*, no. 149, 1963. Voprosy* prikladnoy klimatologii, 72-80

TOPIC TAGS: climatology, USSR climatology, solid precipitation, mixed precipitation, USSR precipitation period, precipitation duration, meteorology, precipitation physico-geographic relationship

ABSTRACT: One of the important problems of climatology is the calculation of perennial average values of different meteorological elements. These averages are used for comparison of climatic conditions of different regions and at the same time are used for the development of different climatic behavior of each season in varied geographical conditions. To measure these perennial averages the authors have employed Tret'yakov's precipitation gauge. The use of Tret'yakov's precipitation gauge in place of a rain gauge with a Nifyer screen resulted in more accurate measurement of the hard precipitation level. This measurement necessitated a reevaluation of the long term averages of the precipitation levels. For the sake of uniformity, any month having no more than 5 days

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ACCESSION NR: AT4002662

with average daily temperatures above 0C was regarded as a part of the hard precipitation period. This definition allows one to determine the duration of the hard precipitation period to within a ten-day interval. The beginning of the hard precipitation period varies from the third 10-day period in September in the North to the second 10-day period in January in the Southwest. The end of this period varies from the second 10-day period of June to the second 10-day period of February. The duration varies over the territory of the USSR and is longest (twenty-eight 10-day intervals) in the northern Taymyr Peninsula and shortest (four to six 10-day intervals) in the southern part of the European territory. The territory of the SSSR is divided into 44 regions, each of which measures 5 degrees in latitude and 10 degrees in longitude as shown in Figure 1 of the Enclosure. For identical wind velocities and type of screening the corrections applied to the average hard precipitation level as measured with the gauge depend upon the physical and geographical conditions of the region. The correction for the mixed precipitation level is constant and is equal to 10%. The duration of the mixed period varies from one 10-day period in the North and Northeast to six to seven 10-day periods in the western and southern portions of the European territory. It is concluded that the average monthly temperature of the hard precipitation period ranges from -6.0 to -7.5C at the beginning and at the end from -5.0 to -7.2C over most of the USSR, with the exception of the northern and north-eastern regions. Orig. art. has: 2 figures and 4 tables.

Card

2/5

ACCESSION NR: AT4002662

ASSOCIATION: Glavnaya Geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00

DATE ACQ: 14Jan64

ENCL: 02

SUB CODE: ES

NO REF SOV: 008

OTHER: 003

Card

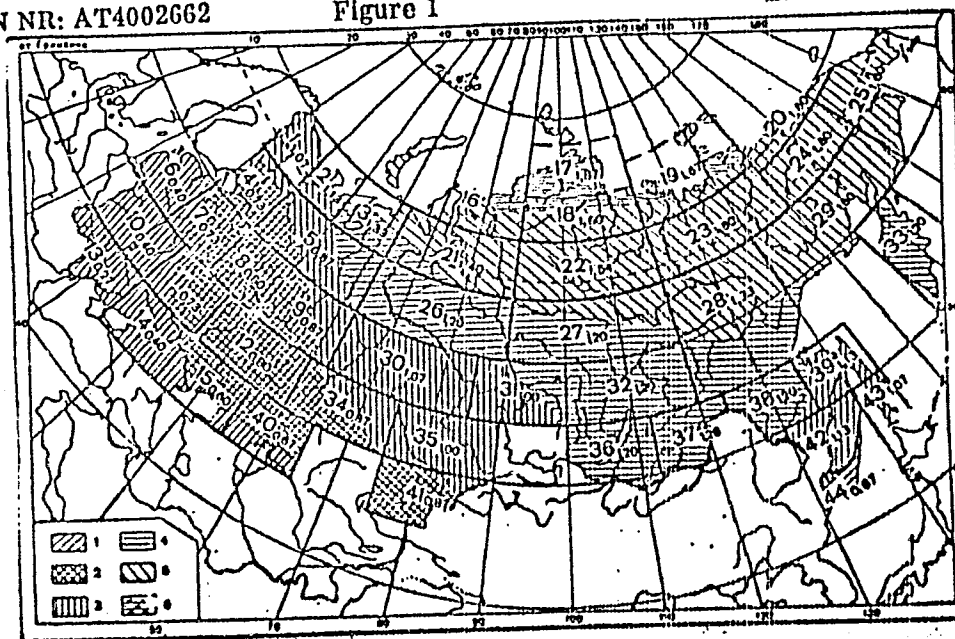
3/6

ACCESSION NR: AT4002662

Figure 1

ENCLOSURE: 01

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ACCESSION NR: AT4002662

ENCLOSURE: 02

(Continued - Fig. 1)

Fig. 1 - Schematic chart of regions (large numerals) and ratios of the duration of the cold period (November to March) to the duration of the hard precipitation period (small numerals). Duration of the period with hard precipitation: 1 - XII₃ - II₂₋₃, 2 - XI₃ - XII₂ - III₁₋₃, 3 - X₁ - 2 - III₃ - IV₂, 4 - X₂₋₃ - IV₂, 5 - X₁₋₂ - IV₃ - V₃, 6 - X₂₋₃ - VI₁₋₂.

(Roman numerals denote the month, subscripts denote number of 10-day intervals from the first day of each month).

Card 5/6

SEMEHOV, A.D.; IVLEVA, I.N.; DATSKO, V.G.

Determination of microgram quantities of amino acids in natural waters. Izv. AN SSSR. Otd. khim. nauk no. 1:184-186 Ja '61.
(MIRA 14:2)

1. Gidrokhimicheskiy institut AN SSSR.
(Amino acids)

SEMENOV, A.D.; IVLEVA, I.N.; DATSKO, V.G.

Method of determining microgram quantities of reducing sugars in natural waters by the use of alkaline solution of bivalent copper.
Gidrokhim.mat. 34:138-146 '61. (MIRA 15:2)

1. Gidrokhimicheskiy institut AN SSSR, Novocherkassk.
(Water--Analysis) (Sugars)

IVLEVA, I. V.

"Dependence of the tissue heat resistance of polychaets upon the condition of temperature and salinity of a medium."

UNESCO - International Symposium on the Role of Cell Reactions in Adaptations
of Metazoa to Environmental Temperature.

Leningrad, USSR,

31 May - 5 June 1963

SEMENOV, A.D.; IVLEVA, I.N.; DATSKO, V.G.

Methods for the concentration and determination of amino acids
in natural waters. Trudy Kom. anal. khim. 13:62-65 '63.
(MIRA 16:5)

1. Gidrokhimicheskiy institut g. Novocherkasska.
(Amino acids) (Water—Analysis)

SEMENOV, A.D.; IVLEVA, I.N.; DATSKO, V.G.

Microdetermination of reducing sugars in natural waters.
Trudy Kom.nanal.khim. 13:66-68 '63. (MIRA 16:5)

1. Gidrokhimicheskiy institut, Novocherkassk.
(Sugars) (Water—Analysis)

SEMENOV, A.D.; IVLEVA, I.N.; DATSKO, V.G.

Determination of microgram quantities of humic acids in natural
waters. *Gidrokhim. mat.* 35:161-167 '63. (MIRA 16:7)

1. *Gidrokhimicheskiy institut, Novocherkassk.*
(Water—Composition) (Humic acid)

SEMENOV, A.D.; IVLEVA, I.N.; DATSKO, V.G.

Determination of the reducing sugars in the hydrolyzates of
the organic matter of natural waters. *Gidrokhim.mat.* 36:161-
164 '64. (MIRA 38:11)

1. *Gidrokhimicheskiy institut, Novocherkassk.* Submitted
December 18, 1961.

DATSKO, V.G. [deceased]; VASIL'YEVA, V.L.; ROMENSKAYA, N.N.;
IVLEVA, I.N.; SEMENOV, A.D.

Some data on organic substances in the Tsimlyansk Reservoir
and elements of their balance. Gidrokhim. mat. 37:63-70 '64.
(MIRA 12:4)

1. Gidrokhimicheskiy institut Glavnogo upravleniya gidro-
meteorologicheskoy sluzhby pri Sovete Ministrov SSSR, Novo-
cherkassk.

IVIEVA, I.M.; SEMENOV, A.D.; DATSKO, V.G. [deceased]

Method of determining reducing sugars in natural waters with
p-aminohippuric acid. Hidrokhim. mat. 38:144-149 '64.

1. Hidrokhimicheskiy Institut AN SSSR, Novocherkassk. (MIRA 18:4)

KHESIN, Gennadiy L'vovich; BABENKOV, Igor' Sergeyevich; IVANOV, Konstantin Ivanovich; MEL'NIKOV, Ye.A., otv. red.; LEDOVSKAYA, V.V., red.; IVLEVA, I.P., red.

[Stress distribution in a boring instrument and in rock;
static and dynamic investigation by the photoelastic method]
Raspredelenie napriazhenii v burovom instrumente i porode;
staticheskie i dinamicheskie issledovaniia metodom foto-
uprugosti. Moskva, TSentr. nauchno-issl. in-t informatsii i
tekhniko-ekon. issledovaniu ugol'noi promyshl., 1963. 89 p.
(MIRA 17:4)

1. IVLEV, V. S. and IVLEVA, I. V.
2. USSR (600)
4. Salmon
7. Results of the evaluation of the physiological value of live feed (*Enchytraeus albidus* Henle) in raising the young of salmon. Zool.zhur. 31 no. 6, 1952.
9. Monthly Lists of Russian Accessions, Library of Congress, March 1953, Unclassified.

IVLEVA, I.V.

Growth and propagation of milk-white worms of the species *Enchytraeus albidus* Henle. Zool.zhur. 32 no.3:394-404 My-Je '53. (MLRA 6:6)

1. Latviyskoye otdeleniye Vsesoyuznogo nauchnogo instituta rybolovstva i okeanografii. (Oligochaeta)

IVLEVA, I. V.

Dissertation: "The Biology of Enchytraeids and Their Use in Rearing Young Baltic Salmon."
Cand Biol Sci, Moscow Technical Inst of the Fish Industry and Economy imeni A. I. Mikoyan,
21 Jun 54. (Vechernyaya Moskva, Moscow, 11 Jun 54)

SO: SUM 318, 23 Dec 1954